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Karl Schanz

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EXAMINER

RUSH, ERIC

ART UNIT

PAPER NUMBER

2624

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/565,919	<b>Applicant(s)</b> SCHANZ, KARL	
	<b>Examiner</b> ERIC RUSH	<b>Art Unit</b> 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-11 and 16-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-11, 16-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 August 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/4/2008</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. This action is responsive to the amendment and remarks received on 4 August 2008. Claims 1, 3 - 11 and 16 – 22 are currently pending.

### ***Drawings***

2. The drawings were received on 4 August 2008. These drawings are accepted by the Examiner and in view of the replacement drawings the objections to the drawings are withdrawn.

### ***Double Patenting***

3. The rejections to claims 1 – 12 and 16 – 22 on the grounds of nonstatutory obviousness-type double patenting have been withdrawn in view of the terminal disclaimer filed 4 August 2008.

### ***Terminal Disclaimer***

4. The terminal disclaimer filed on 4 August 2008 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. Patent No. 6,810,138 B1 has been reviewed and is accepted. The terminal disclaimer has been recorded.

***Claim Rejections - 35 USC § 102***

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1, 3, 6 - 7, 11 and 16 - 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Shigeyama et al. U.S. Patent No. 5,450,204.

- With regards to claim 1, Shigeyama et al. teach a method for the testing of a substrate provided with a predetermined pattern, comprising optically detecting an actual pattern, (Shigeyama et al., Column 5 Lines 22 - 27) the actual pattern having been applied to a substrate by a printing or structuring process employing a correspondingly constituted template produced by employing control data, (Shigeyama et al., Column 3 Lines 29 - 61) comparing the optically detected actual pattern with a desired pattern, in dependence upon the comparison and taking into account permissible tolerances, (Shigeyama et al., Column 6 Line 59 – Column 7 Line 14) determining a further process to which the observed substrate provided with the actual pattern is to be delivered, (Shigeyama et al., Column 7 Lines 19 – 27) wherein optically detecting an actual pattern comprises: effecting the optical detection of the actual pattern in the form of digital data and forming an actual data set, (Shigeyama et al., Column 7 Lines 7 - 14) formatting a desired data set from the control data employed for producing the template for applying the pattern onto the substrate,

(Shigeyama et al., Column 7 Lines 7 - 14) and carrying out data processing by comparing the desired data set and the actual data set datawise with one another taking into account permissible tolerances. (Shigeyama et al., Column 6 Line 59 – Column 7 Line 14)

- With regards to claim 11, Shigeyama et al. teach an arrangement for the testing of a substrate provided with a predetermined pattern, comprising an opto-electronic arrangement for detecting an actual pattern applied to the substrate by a printing or structuring process, (Shigeyama et al., Column 5 Lines 22 - 27) a correspondingly constituted template for applying the pattern onto the substrate, (Shigeyama et al., Column 3 Lines 29 - 61) a comparator for comparing the optically detected actual pattern with a desired pattern and in dependence upon the comparison and taking into account permissible tolerances (Shigeyama et al., Column 6 Line 59 – Column 7 Line 14) determining a further process to which the observed substrate provided with the actual pattern is to be delivered, (Shigeyama et al., Column 7 Lines 19 – 27) a converter for converting the pattern detected by the opto-electronic arrangement into an actual data set in the form of digital data, (Shigeyama et al., Column 7 Lines 7 - 14) and a formatter to format a desired data set from control data for the application of the pattern onto the substrate, (Shigeyama et al., Column 7 Lines 7 - 14) wherein the comparator carries out the desired data set and the actual

data set datawise with one another taking into account permissible tolerances. (Shigeyama et al., Column 6 Line 59 – Column 7 Line 14)

- With regards to claim 3, Shigeyama et al. teach the method according to claim 1, comprising testing selected sections of the desired pattern. (Shigeyama et al., Column 6 Line 59 – Column 7 Line 3)
- With regards to claims 6 & 16, Shigeyama et al. teach the method and arrangement according to claims 1 & 11, respectively, comprising effecting the optical detection pixel-wise by means of a digital camera. (Shigeyama et al., Column 3 Lines 29 – 40, Column 5 Lines 28 - 40)
- With regards to claims 7 & 17, Shigeyama et al. teach the method and arrangement according to claims 6 and 16, respectively, comprising effecting relative movement between the digital camera and the substrate carrying the actual pattern for optical detection. (Shigeyama et al., Column 5 Lines 28 – 55, the printed circuit board moves with respect to the camera, i.e. relative movement)

***Claim Rejections - 35 USC § 103***

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 8 - 9, and 18 - 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shigeyama et al. U.S. Patent No. 5,450,204 as applied to claims 7, and 17 above, and further in view of Kvamme et al. U.S. Patent No. 6,636,301.

- With regards to claims 8 & 18, Shigeyama et al. teach the method and arrangement according to claims 7 & 17, respectively. Shigeyama et al. fail to teach wherein the digital camera is a linear camera one pixel wide, the length of which corresponds to one linear dimension of the region of the actual pattern on the substrate to be tested, and comprising effecting the relative movement with a step size of one pixel perpendicularly to the one linear dimension. Kvamme et al. teach wherein the digital camera is a linear camera one pixel wide, the length of which corresponds to one linear dimension of the region of the actual pattern on the substrate to be tested, (Kvamme et al., Column 5 Lines 60 – 67, Column 13 Lines 1 - 24) and comprising effecting the relative movement with a step size of one pixel perpendicularly to the one linear dimension. (Kvamme et al., Column 13 Lines 1 - 24) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Shigeyama et al. with the teachings of Kvamme et al. This modification would have been

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prompted in order to image the entire surface for inspection with a high degree of detail and accuracy.

- With regards to claims 9 & 19, Shigeyama et al. in view of Kvammet et al. teach the method and arrangement according to claims 8 & 18, respectively. Shigeyama et al. fail to teach wherein the linear camera comprises linear sub-cameras arranged in a staggered manner. Kvamme et al. teach wherein the linear camera comprises linear sub-cameras arranged in a staggered manner. (Kvamme et al., Column 4 Line 53 – Column 5 Line 31)

9. Claims 4 – 5, 10, and 20 – 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shigeyama et al. U.S. Patent No. 5,450,204 as applied to claims 1, and 11 above, and further in view of Gerber et al. U.S. Patent No. 5,608,453.

- With regards to claim 4, Shigeyama et al. teach the method according to claim 1. Shigeyama et al. fail to teach a method comprising associating different tolerance data subsets with various sections of the desired pattern. Gerber et al. teach the method comprising associating different tolerance data subsets with various sections of the desired pattern. (Gerber et al., Column 6 Lines 20 – 30 and Lines 41 - 63) It would have been obvious to one of ordinary skill in the art at the time of the invention



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to modify the teachings of Shigeyama et al. with the teachings of Gerber sections to et al. This modification would have been prompted because some circuitry requires more exacting precision than other circuit components. (Gerber et al., Column9 Lines 29 - 46)

- With regards to claim 5, Shigeyama et al. teach the method according to claim 1. Shigeyama et al. fail to teach a method comprising carrying out data processing by editing the respective data sets with regard to the be compared. Gerber et al. teach the method comprising carrying out data processing by editing the respective data sets with regard to the sections to be compared. (Gerber et al., Column 6 Lines 20 – 30 and Lines 41 – 63, Column 8 Lines 4 – 13, and Column 9 Lines 19 - 46) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Shigeyama et al. with the teachings of Gerber et al. This modification would have been prompted because some circuitry requires more exacting precision than other circuit components. (Gerber et al., Column9 Lines 29 - 46)
- With regards to claims 10 and 20, Shigeyama et al. teach the method and arrangement according to claims 1 & 11, respectively. Shigeyama et al. fail to teach wherein the substrate, on which the actual pattern to be tested

is applied, itself already carries at least one other patterns and comprising constituting or carrying out the optical detection so that it discriminates the actual pattern to be tested with respect to the other pattern and the substrate. Gerber et al. teach wherein the substrate, on which the actual pattern to be tested, is applied, itself already carries at least one other patterns (Gerber et al., Column 5 Lines 52 – 67 and Column 6 Lines 31 – 67, the features described in Column 5 Lines 60 – 61 are the plurality of patterns which are inspected, i.e. tested) and comprising constituting or carrying out the optical detection so that it discriminates the actual pattern to be tested with respect to the other pattern and the substrate. (Gerber et al., Column 7 Line 34 – Column 8 Line 26) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Shigeyama et al. with the teachings of Gerber et al. This modification would have been prompted because some circuit elements require more exacting precision than other circuit components. (Gerber et al., Column 9 Lines 29 - 46)

- With regards to claim 21, Shigeyama et al. teach the method according to claim 1. Shigeyama et al. fail to teach a method comprising testing the template for faults arising in the course of use. Gerber et al. teach the method comprising testing the template for faults arising in the course of use. (Gerber et al., Column 1 Lines 19 – 40, Column 6 Lines 20 – 30, the

circuits are inspected for defects that may render a board useless within the course of use of the circuit. The features used have different acceptable tolerances which relate to templates for inspection) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Shigeyama et al. with the teachings of Gerber et al. This modification would have been prompted in order to allow for acceptable variations in tolerances that would permit the circuits functionality to still be realized even if the circuit is not perfect.

- With regards to claim 22, Shigeyama et al. in view of Gerber et al. teach the method according to claim 4. Shigeyama et al. fail to teach a method comprising carrying out data processing by editing the respective data sets with regard to the associated tolerances. Gerber et al. teach the method comprising carrying out data processing by editing the respective data sets with regard to the associated tolerances. (Gerber et al., Column 6 Lines 20 – 30 and Lines 41 – 63, Column 8 Lines 4 – 13, and Column 9 Lines 19 - 46)

### ***Response to Arguments***

10. Applicant's arguments filed 4 August 2005 have been fully considered but they are not persuasive. On pages 9 - 10 of the amendment and remarks the Applicant's

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Representative argues that Shigeyama differs from the instant application in that Shigeyama uses CAD data instead of prepared (control) data to obtain the inspection data. The Applicant's Representative goes on to argue that the CAD data is not the same as control data because "The CAD data corresponds to design data used to design the screen mask, but is not used to actually produce the screen mask."

Furthermore, the Applicant's Representative argues that respective ways in which tolerances are accounted for differ "significantly" because, once again, Shigeyama uses CAD data in contrast to the instant applications control data. The Examiner respectfully disagrees. The Examiner asserts that the control data recited in the claims of the instant application is not patentably distinct from the CAD data of Shigeyama. Furthermore, the Examiner draws attention to Column 7 Lines 7 - 14 of Shigeyama wherein it is disclosed that the CAD data of the screen mask is converted before the printing step and also to create inspection data, this reads on and corresponds to the prepared (control) data of the instant application. The Examiner also respectfully disagrees with the Applicant's Representative's argument that the comparison steps differ because Shigeyama first converts the CAD data in order to obtain the inspection data and furthermore because of the lack of clarification, specifically in the claims, detailing the difference of the instant application's control data to the data described in Shigeyama. In Column 3 Lines 41 – 54, Shigeyama details the use of instructions from a computer device and a *controller*, which seems to be significantly similar to the data used in the method and arrangement disclosed in the instant application.

***Conclusion***

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIC RUSH whose telephone number is (571)270-3017. The examiner can normally be reached on 7:30AM - 5:00PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew C Bella/  
Supervisory Patent Examiner, Art  
Unit 2624

ER